

## **Creating Workplace Environments to Combat Obesity**

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Obesity has reached epidemic proportions in the United States (CDC, 2004) and most weight control efforts have not been very successful in helping people lose weight (Wadden, 1989). The purpose of this paper is to provide a framework to guide efforts to create environments that combat obesity, with emphasis on the physical aspects of workplace environments that impact health behaviors. It is important to stress that the physical environment is just one part of the workplace environment that influences employees' health. Furthermore, creating supportive environments is just one part of stimulating positive health behaviors. Therefore physical environments are discussed within the context of a framework for comprehensive workplace health promotion programs. The paper starts with a brief discussion on the behavioral psychology context in which these issues should be considered, then provides a short review of the levels of programming in a comprehensive program and concludes with a report of the findings of a recent literature review on the policy and environmental interventions that promote physical activity and nutrition.

### Behavioral Psychology Context

One of the primary reasons for the failure of many health promotion programs is their basis on the faulty assumption that changing knowledge, attitudes and beliefs through education is sufficient to change behavior and the resulting health conditions. Practitioners have understood that education has limited impact for decades. In 1986, the *American Journal of Health Promotion* advocated for a broader approach to health promotion which encompassed three levels of impact: awareness, behavior change or skill building, and supportive environments (O'Donnell, 1986). Nevertheless, academics have been slow to understand the limitations of education-guided approaches. For example, the Health Belief Model guided many early academically driven health promotion efforts through the 1990's, even though a meta-analysis (Harrison, et al 1992) showed that the mean effect size of its four elements were able to account for only .1% to 9% of the variance in outcome. More recent scholarly work has helped to provide a theoretical explanation of why education does not work very well, especially in weight control. The stages of change construct advanced by Prochaska and DiClemente (1992) postulates that people at risk fall into one of five or six stages: Precontemplation, Contemplation, Preparation, Action, Maintenance (and sometime Termination for addictive behaviors). People in precontemplation are not thinking about changing a behavior; people in contemplation are thinking about changing a behavior some time in the next six months; people in preparation are planning to change a behavior within the next month; people in action have started to change the behavior, people in maintenance are working to maintain the behavior; and people in termination have been practicing the behavior for more than 6 to 12 years, and are not tempted to revert to the old behavior. Educational or awareness programs would be expected to be screened out or ignored by people in precontemplation, might help move people in contemplation toward preparation, would probably enhance the behavior and self-efficacy of people in preparation, but probably would not provide the skills necessary to help them move from preparation to action, might reinforce the self-efficacy and behavioral necessary to help people in action move to maintenance and would probably help people in maintenance remain motivated to avoid relapse to earlier stages. Weight control as a risk factor is complicated by the fact that it is not a behavior, but the outcome of the interaction between two behaviors, eating

and physical activity, and a physical condition, metabolism. Therefore, the target of any education based weight control programs must be changing eating and physical activity behaviors, not producing weight loss. If we assume that 40% of overweight people who do not exercise regularly and eat an unhealthy diet are in precontemplation to improve their eating and exercise on regular basis, 40% are in contemplation and 20% are in preparation are action. So at maximum we would expect education programs to be of some value in helping 60% of people who are don't exercise regularly or eat an unhealthy diet advance to the next stage of readiness to change, but stimulate no new practices and produce no weight loss.

An effective health promotion must do far more than educate people. It must engage them in ongoing behavioral change processes and create an environment that encourages them to continue these new health practices. Each of these elements is described below.

### Elements of a Comprehensive Program: Awareness, Behavior Change, Supportive Environments

A comprehensive health promotion program has three basic elements, awareness programs, behavior change programs and supportive environments (O'Donnell, 2002). Each of these is discussed briefly with the focus on supportive environments.

**Awareness.** Awareness programs help people understand the relationship between lifestyle and health, and make them aware of opportunities to improve their lifestyle. In the obesity area, awareness programs help people understand the health risks of being overweight, the impact of eating and physical activity on weight, the complex relationships between eating, social norms, emotions and eating habits, and the components of a good exercise program.

**Behavior change or skill building.** Behavior change or skill building programs engage people in a process of setting goals, learning the skills necessary to achieve those goals, and providing reassessment and reinforcement over time. In the weight control area, an ideal program would start with an assessment including measurement of height, weight, and circumference measurements of arms, chest, waist, hips, and legs, and possibly body fat composition, as well as a nutritional assessment, fitness assessment including cardiovascular condition, muscle strength and flexibility, a physical activity assessment, and possibly an interest assessment. This would be followed by setting goals in body fat composition, target weight, eating and physical activity, and developing a plan to achieve those goals. Skill building would be very specific to the goals and be experiential, not theoretical. It might include how to plan healthy meals, how to purchase, prepare and serve these foods. It would also include how to overcome family and societal pressures, how to manage emotions related to eating, how to order healthy foods in restaurants and other settings, and other skill -ocused training. On the physical activity side of the equation, skill building programs would help the person incorporate physical activity into their routine transportation, work practices and period chores. It would also show them how to walk, run, cycle, or perform some other calorie burning activity, and how to maintain this activity on a long term basis.

**Supportive environments.** Supportive environments have four basic elements: the physical environment, policies and programs, organizational norms, and group processes. These elements work synergistically to reach employees at all stages of readiness to change. For employees in precontemplation, environments can cause them to perform the desired behavior without any cognitive processing. For example if stairways are easily accessible and elevators are hard to find, a sedentary employee is more likely to use the stairs. If smoking is not allowed in the workplace, the employee is not likely to smoke in the workplace. If junk food is not

available at work, the employee will be less likely to eat junk food during the work day. After performing these new behaviors, the employee in precontemplation might become more aware of these new behaviors, understand they can be performed without difficulty and consider performing them in other settings. The employee in contemplation is likely to be aware of changes caused by the environment and may move more quickly to the preparation stage. Employees in preparation and action will actively engage the environment to help them reinforce the behavior changes they are intentionally making. Employees in maintenance will appreciate the reinforcement when they are conscious about maintaining their behaviors, and still be reinforced even when they are not conscious. Supportive environments thus impact people at all stages of readiness to change.

An environment supportive of combating obesity will not address obesity directly. Instead it will need to encourage behaviors related to obesity, physical activity and good nutrition. Table 1 lists a variety of strategies to create a supportive environment through the physical environment, policies and programs, and organizational norms. The process through which programs are developed can also have a significant impact in on the overall supportiveness of the environment. A process which allows employees opportunities to be involved in all aspects of program conceptualization, development, management and governance is more likely to instill a sense of employee ownership, and lead to higher participation and adoption levels. A program developed by management without employee involvement is less likely to be accepted by employees.

### Empirical Support

The empirical support for policy and environmental interventions is growing. Diane Matson Koffman and colleagues (in press, shared here with author's permission) recently completed a comprehensive systematic review of the literature on policy and environmental interventions to promote physical activity and good nutrition. The review included articles published from 1970 through October 2003 that provided a description of the intervention; and reported behavioral, physiological, or organizational change outcomes. Studies that had inadequate intervention descriptions or that focused on determinants research, individual-level interventions only, the built environment (community planning and design, land development patterns, urban sprawl and transportation systems), or media-only campaigns were excluded. A total of 65 studies were published before 1990 and 64 were published 1990-2003 Data were synthesized by topic (i.e., physical activity or nutrition), by type of intervention (i.e., point-of-purchase) and by setting (i.e., community, health care facility, school, work site).

Strong evidence showed that environmental interventions, including point-of-purchase strategies, menu modifications, price reductions, and offering/labeling healthier food selections in various settings, are effective in improving nutrition and that signs are effective in increasing stair use.

Moderately good evidence showed that providing people more access to places and opportunities for physical activity is associated with improvements in exercise; and giving students more opportunities for PE classes taught by better-trained PE teachers is effective in increasing students' physical activity levels while at school.

Preliminary evidence showed that systematic office reminders combined with physician training is effective in increasing physician nutritional counseling of patients and that comprehensive work site programs that combine health promotion counseling, education, peer support, incentives, and access to fitness facilities are effective in increasing employees' physical activity levels.

The authors also noted a number of gaps in the literature including the following: fewer studies on physical activity than nutrition; a lack of studies in health care settings; strategies are not tested against each other, or compared to non-environmental approaches; interventions are not described in detail; there are many design and measurement limitations, most studies have short duration, and there are a lack of studies on underserved groups

Based on these findings, the authors recommended that health care practitioners should consider incorporating policy and environmental interventions into comprehensive health promotion programs, and that researchers should conduct rigorous studies to evaluate the long-term effectiveness of policy and environmental interventions alone and in combination with other more traditional approaches to meet physical activity and nutrition goals, while continuing to disseminate the results and lessons learned from previous intervention studies. They concluded by saying that these efforts need adequate funding and a sustained commitment from the public and private sectors in order to build the science base and support professional and public awareness.

### Conclusion

Obesity is a serious health condition that impacts as many people as virtually any other health condition, and kills far more people than are killed by toxic chemicals in the air, water and other aspects of the environment. Most people who try to lose weight fail in part because they work and live in a toxic environment in which activity has been engineered out of their lives and unhealthy food in large quantities are readily available at low cost. Most weight control strategies fail because they are based on obsolete educational principles instead of engaging participants in the actions they need to perform, and neglecting to account for, let alone harness the physical and social environment. Environmental change strategies have the potential to help people be more successful in achieving and maintaining healthy weights, especially in the context of comprehensive health promotion programs. Some changes, like providing healthy food in cafeterias and making stairways more appealing, are simple and inexpensive to implement. Other changes, like designing new buildings to engineer actively INTO employees' work days, increasing the availability of public transportation and providing access to healthy foods for all people probably have no net societal cost, but will require shifting of existing resources and the societal and political will to make that happen. Other changes, like retrofitting the existing physical infrastructure to create walkable communities, will have a significant net cost.

The first step in this process is clarifying the magnitude of our societal priorities to make these types of changes.

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